135273

United States General Accounting Office

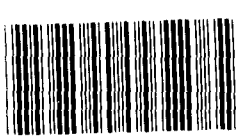
GAO

Report to the Honorable
John P. Murtha, House of Representatives

March 1988

ARMY PROCUREMENT

Unnecessary Restriction on Competition for New Chemical Protective Masks



GAO

United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-229298

March 2, 1988

The Honorable John P. Murtha
House of Representatives

Dear Mr. Murtha:

As you requested, we reviewed the Army's decision to limit competition for the initial production of a new chemical and biological field protective mask, the XM40, which is designed to protect the face, eyes, and respiratory system of the user against a wide range of chemical and biological agents.

The Army, after funding development of the XM40, including the preparation of validated technical data packages (TDP), elected to limit competition for initial production to the XM40's two mask developers. On June 24, 1987, the Army awarded a 2-year contract to one of the developers for 300,000 XM40s and XM40 variants, which included an option for production of up to an additional 150,000 masks. This contract's value, with options, is approximately $75 million.

We reviewed the Army's rationale for limiting competition for the mask, as set forth in the Army's "Determination and Findings for Other Than Full and Open Competition" (D&F), "Justification and Approval for Other Than Full and Open Competition," "Acquisition Strategy For The XM40 Series Protective Mask," and XM40 "Acquisition Plan" documents. In our opinion, the Army has not adequately supported its decision to restrict competition. It is not clear that the Army met the intent of the Competition in Contracting Act (CICA) of 1984, which requires that federal government contracting be based on full and open competition unless a specific exception applies. CICA was enacted by the Congress to enhance competition and to limit unnecessary sole-source contracting or restricted competition.

Background

The XM40 series mask will replace most of the Army's current mask inventory, estimated at 2.7 million masks, which includes the M17 general use, the M9A1 special purpose, and the M25A1 armored crewman masks. Development of the XM40 began in 1982 when an earlier mask program, for the XM30, was canceled. The XM30 was being developed to meet requirements initially identified in a 1974 Army "Required Operational Capability" document and, later, in a 1978 "Joint Services Operational Requirement" document.

The XM40 mask design was conceived as a minimum risk engineering development, in part, to reduce technical and production risks and to help ensure quick fielding. As such, it used proven mask technology and components, including the M17 binocular hard lens and several successful XM30 components. The XM40 was designed and developed using a two-phase engineering development program. Phase I required that contractors design a basic protective mask and fabricate test prototypes to demonstrate design adequacy. Phase II required further development and testing, including the completion and validation of supporting TDPs (including all drawings and data necessary to solicit full and open competition for production quantities), the fabrication of limited tooling and test equipment, and the development of pertinent manuals, plans, and other documents.

After full and open competition, the Army awarded phase I contracts to three U.S. contractors in February 1983. A British contractor was also allowed to enter phase I, pursuant to the terms of an international agreement. Each U.S. contractor was funded to a consistent and equitable level of effort (the British contractor was not funded by the United States), and design qualification tests were conducted on all masks. At the conclusion of phase I, the Army allowed two of the three U.S. contractors and the British contractor to advance into phase II. The third U.S. competitor was disqualified because of hardware deficiencies and an inadequate proposal for phase II.

During phase II, about 1,200 mask prototypes from each U.S. contractor were tested by the Army at nine different locations to determine whether they conformed to the contractors' TDP drawings and specifications. Each U.S. contractor was also funded for pre-planned product improvements. The two U.S. contractors successfully completed phase II testing and were paid about $6 million each for their developmental efforts. Their mask designs were forwarded for source selection. The British mask was eliminated from further consideration when the mask design failed to fulfill the requirements in the "Joint Services Operational Requirement" document.

After limiting competition for the initial production contract to the two developers, the Army awarded a multiyear, firm-fixed-price contract to one of the developers for a total of 300,000 masks, plus an option for up to 150,000 additional masks. The winning contractor is responsible for successfully completing first article tests and demonstrating sustained high-rate mask production. Such sustained production is expected to occur about 1 year after contract award when production reaches

10,000 masks per month (at which point about 26,000 total masks will have been produced).

Once sustained high-rate production has been demonstrated, the Army plans to award a second 1-year production contract through full and open competition involving all mask producers, except for the initial production contractor. This contract will run concurrently with the first one and will produce about 107,800 masks. Both contracts are scheduled to end within 30 days of each other, with total production of approximately 407,800 masks. Near the completion of the two contracts, a third full and open competition will be held for follow-on production. Current Army plans call for continuing annual or multiyear contracts for the approximately 2.3 million masks still required, as well as a possible 150,000 replacements each year thereafter.

The Army Limits Competition for Initial Mask Production

The "Justification and Approval for Other Than Full and Open Competition" that accompanied the revised XM40 "Acquisition Strategy" and XM40 "Acquisition Plan," dated January 15, 1987, established that the Army planned to limit its initial production competition to the two mask developers. On May 1, 1987, the Army notified the Congress of its intention to limit competition under the CICA provision that permits the use of less than full and open competition when the head of an executive agency determines that it is in the public's interest to do so (10 U.S.C. 2304(c)(7)).

In support of this action, a D&F statement, signed by the Secretary of the Army on February 4, 1987, was prepared. It stated that limited competition was necessary to

- validate the TDP,
- ensure early mask delivery to meet urgent operational requirements,
- ensure the receipt of accurate mask cost/price information in order to make an intelligent selection decision between the two competing masks, and
- ensure competition for the follow-on mask contracts.

Validation of the TDP

The Army stated in its D&F that it was necessary to limit competition for initial mask production to the two mask developers in order to validate the XM40's TDP. The Army explained that, while the government-owned drawings and specifications for its two mask designs had been validated during phase II of engineering development through the production and

testing of 2,000 masks, they could not be used for competitive procurement until the selected mask developer had produced the mask in much larger quantities to "verify production procedures, processes and techniques."

The record does not support the Army's decision to limit competition to only the mask developers in order to verify production procedures, processes, and techniques. While we agree that important program decisions and changes are involved in a transition from development and limited production to high-rate sustained production, the Army did not establish that only the two mask developers were capable of making this transition.

The Army has not established that the XM40 mask is either so unusual or so complex that special risks will be involved during the transition to full production. In fact, as indicated below, the opposite appears to be the case. During development, for example, the Army made a major effort to minimize technical and production risks. The Army's latest XM40 "Acquisition Strategy," dated January 15, 1987, notes that risk was minimized by using, to the maximum extent possible, proven mask components and materials from prior mask programs. Such use of proven technology and components, as well as other similarities with previous masks, meant that the XM40's total design effort involved less risk and was less extensive overall than similar new developments and that the mask would be produced using standard mask tooling and production equipment. Production risk is also reduced because government-owned tooling and production equipment unique to the XM40 and used during engineering development to build developmental masks will form the nucleus of equipment and tooling used by the initial production contractor. Finally, production risk is further reduced because, according to the Army, the XM40 has a less complex mask design than the masks being replaced, primarily the M17.

The reduced production risk was highlighted in an earlier version of the XM40 "Acquisition Strategy." This document, approved by the Army's Deputy Commanding General for Chemical Materiel, dated June 6, 1984, contains the following statements:

"Because of the similarity of the XM40 to the XM30 and M17, there should not be any tooling/process innovations required for fabrication. Advance planning and constant coordination is being accomplished to minimize schedule risk."

"Additionally, a truly competitive Technical Data Package (TDP) will be available at the completion of engineering development."

"... [I]t is planned to award parallel production efforts. 30-50 percent of the FY86 quantity ... will be awarded to the contractor with the winning development effort. The remaining quantity will be awarded on a price competitive basis."

The record seems clear that the Army initially planned to have a competitive TDP available upon completion of engineering development, that XM40 production risks were expected to be minimal, and that parallel production was expected during the mask's initial production.

Before concluding that only the mask developers could be expected to verify the production process, the Army did not perform a formal evaluation of the production capabilities of other interested contractors. One such contractor had successfully produced several million masks for the U.S. military, with a production rate of 25,000 to 75,000 per month, compared to the 20,000 to 30,000 per month requirement for economic production of the XM40. Although this contractor was not successful in completing the XM40 engineering development program, the record strongly suggests that it has had substantial success in manufacturing masks. In contrast, the Army was aware that one of the XM40 developers had no previous experience in large mask production efforts and the other developer had experienced some problems in producing parts for an Air Force mask.

Early Delivery

The Army, while clearly indicating in the D&F its preference that one of the developing contractors proceed with the first production run, also implied that any experienced and qualified contractor, given time, could verify the TDP through initial production and produce an acceptable mask. The Army concluded in the D&F that only the mask developers could accomplish such TDP production verification and complete delivery of the production quantities within the required time frame to satisfy urgent needs. The Army also concluded that award of the first production contract to other than the mask developer would entail unacceptable schedule risks.

In reaching these conclusions, however, the Army did not analyze how much additional time other contractors would require to begin production and complete delivery or establish a measure by which the degree of schedule risk involved with full and open competition could be judged. Further, we found no indication that the Army had considered

justifying limited competition under the CICA provision that specifically authorizes an agency to use other than full and open competition when its need for the property or services is of such an unusual and compelling urgency that the United States would be seriously injured unless the agency is permitted to limit the number of sources from which it solicits bids or proposals (10 U.S.C. 2304(c)(2)).

The Army also did not establish, with any degree of certainty, that the mask developers are capable of complying with its desired production and delivery schedule. As previously noted, one of them had some difficulty in producing parts for an Air Force mask, and the other had never before been involved in a large mask production contract. In contrast, one of the other interested contractors has successfully produced large quantities of acceptable masks.

Finally, although the Army has established targets for initial XM40 mask fielding and long-range production to meet most of its projected requirement, it seems willing to adjust the schedule to accommodate program changes and other changing circumstances. Only with the publication of the D&F did the Army state that a delay of several months must be avoided. As previously noted, the Army first developed its requirement for a new mask in 1974. Two previous Army mask development programs, for the XM29 and the XM30, failed to provide the desired improvements. The XM40 was started in 1982 and was to be initially fielded in August 1986. However, due to various program delays, the initial production contract was not awarded until June 1987 and does not require first delivery until approximately February 1988. Initial fielding of the XM40 is now scheduled for June 1988 and final delivery in December 1989. This initial contract will provide only 300,000 of the Army's estimated requirement of 2.7 million masks. The Army estimates that it will take over 10 years from first delivery to meet its total mask requirement. Notwithstanding this list of planned and actual program milestones spanning a period of 24 years, the Army contends that it cannot afford any additional delay.

Accurate Cost and Price Information

The Army concluded that restricted competition will ensure the receipt of accurate cost and price information but provided no analyses or support for this position. Clearly, obtaining accurate price information is in the public interest, but in our opinion this goal could have also been met under full and open competition. Full and open competition should give greater assurance that realistic prices are obtained by allowing additional contractors to bid on the mask's production.

Follow-On Competition

The Army concluded that limiting initial production competition and obtaining a second source for the second production contract will ensure that two fully qualified mask producers are available for all remaining requirements. While this goal could be achieved with limited competition for the first production contract, it could also be met under full and open competition.

Legal Questions Reviewed by the Federal Court and GAO

On January 28, 1987, the U.S. mask developer who was eliminated at the end of engineering development phase I initiated litigation in U.S. District Court for the Eastern District of Virginia, questioning the legality of the Army's decision to procure 300,000 XM40 masks using less than full and open competition. On May 1, 1987, the court ruled against the contractor's allegations and dismissed the case. The court ruled that the Army had properly invoked the public interest exception and that there was no appearance of impropriety, showing of bad faith, or detrimental reliance. As of November 15, 1987, the matter was under appeal.

On July 2, 1987, in an unrelated legal development, the U.S. mask contractor who had bid but had not been chosen for the initial limited production contract filed a bid protest with our office. This contractor, who had offered a significantly lower mask price, contended that the Army had not evaluated contractor proposals in accordance with the evaluation criteria set forth in the solicitation document. On November 9, 1987, we sustained the bid protest because the Army's mask selection decision was not based on the request for proposal evaluation scheme and recommended that the Army terminate the present XM40 initial production contract for the convenience of the government and procure its requirements on a competitive basis using the selected government-owned TDP.[1]

Views of Agency Officials

The Deputy for Procurement, Army Materiel Command; the Assistant Deputy for Procurement, Office of the Secretary of the Army; and the Army Office of General Counsel, Office of the Secretary of the Army, commented on a discussion paper detailing our findings. These officials agreed that the Army had not prepared detailed analyses or studies to support the D&F assertions for limiting competition. All noted, however, that both the XM40 "Acquisition Strategy" and the XM40 "Acquisition Plan" had been reviewed and approved by the Secretary of the Army. Both officials from the Office of the Secretary contended that, while no formal documented analyses and studies had been conducted, the Army

[1] ILC Dover, Inc., B-227839.2, November 9, 1987.

had fully supported its D&F by using its "best cumulative business judgment." They explained that the large volume of ongoing Army development and acquisition activities often forces officials to rely on past acquisition experience and business judgment, as opposed to detailed analyses and studies. All three officials stated that the Army leadership was confident that the best acquisition decision—to limit initial production competition—had been reached. The two officials from the Secretary's office also felt that the recent federal court decision against the U.S. manufacturer who was eliminated during engineering development phase I reinforces the correctness of their acquisition strategy.

Conclusion

We are not questioning the Army's operational requirement for the XM40 mask. However, our review of the Army's D&F justifying limited competition for XM40 initial production found that it relies on several basic arguments that are not adequately supported. The Army contends that the selected TDP must be verified through a demonstration of sustained high-rate production prior to full and open competition and that only the mask developers can ensure timely verification and quick delivery to the field. We believe that the Army's argument that only the mask developers can accomplish these tasks is not adequately supported. From the program's start, the Army has incorporated low-risk production and technical features into the XM40 mask. Verification and production risks have been minimized by the use of a competitive, government-owned TDP (validated through engineering development), proven mask technology and components, and government-owned equipment and tooling. We are aware of no reason why TDP verification could not be accomplished by any competent contractor selected using full and open competition.

In contending that the initial competition must be limited to the mask developers, the Army has not compared the capabilities of other experienced mask contractors with those of the developers to determine the best contracting approach to verify production and meet fielding schedules. Neither has the Army, after 12 years of development, made a convincing case that the delay that might result from full and open competition would severely affect its operations. Indeed, if urgency had been the critical factor, the Army could have utilized the CICA exception that allows for restricting competition when urgent and compelling circumstances exist.

We do not believe the Army has adequately supported its position that full and open competition could not be used for the first production contract of the XM40 mask. In our decision sustaining the protest of the contract award for the XM40 series mask we recommended to the Secretary of the Army that the Army terminate the XM40 contract and procure its requirements on a competitive basis.

On December 4, 1987, the Under Secretary of the Army responded to our recommendation. He stated that the Army is not in a position to terminate the award for the XM40 mask for a variety of reasons. We will respond directly to the Under Secretary's letter; however, we believe that the recommendation made in our bid protest decision that the Army should terminate the XM40 contract and procure its requirements on a competitive basis should not be ignored.

Objective, Scope, and Methodology

We examined the Army's development and procurement of a new chemical biological protective mask to determine the reasonableness of its procedures during development and in limiting competition for the first production buy. To achieve this objective, we reviewed the XM40 "Acquisition Strategy" and XM40 "Acquisition Plan," "Determination and Findings for Other Than Full and Open Competition," "Justification and Approval for Other Than Full and Open Competition," contract solicitation, issued contracts, and other official documents at Edgewood Arsenal, Maryland, and at the U.S. District Court for the Eastern District of Virginia. We interviewed program and acquisition officials at the Edgewood Arsenal and the offices of the Under Secretary of the Army, the Deputy Assistant Secretary of the Army (Acquisition), and the Procurement Directorate of the Army Materiel Command in Alexandria, Virginia. We did not, however, evaluate the operational requirement for the XM40 mask.

We provided Army officials with a discussion paper detailing our major findings and considered their comments during the preparation of this report. As requested, we did not obtain official agency comments. We performed our review from April to November 1987 in accordance with generally accepted government auditing standards.

As arranged with your office, we are sending copies of this report to the Secretaries of Defense and the Army. Unless you publicly announce its contents earlier, no further distribution of this report will be made until

10 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

Frank C. Conahan
Assistant Comptroller General

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use $300

First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are $2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.